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ABSTRACT

Growing concerns have been raised regarding enrollment figures for Black students and other minority groups in higher education. The current state of minority faculty and student presence is revealed in the institutions of higher education in Indiana. Five population subgroupings were studied including Whites, Blacks, Asians, Hispanics, and females. Trends relating to the preparation of teachers in the critical areas of mathematics, science, computer science, and foreign languages are discussed. Two points of focus examine Indiana's experience with minority enrollment trends in teacher preparation programs. In addition, the implications of a significantly low minority faculty representation paint a dim picture for the presence of minority role models in higher education. (JD)

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# PRESENCE OF MINORITY STUDENTS AND FACULTY IN HIGHER EDUCATION TEACHER TECHNICAL PREPARATION PROGRAM AREAS

by

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RUNNING HEAD: Minority Presence

## Abstract

Growing concerns have been raised regarding enrollment figures for black students and other minority groups in higher education. The current state of minority faculty and student presence is revealed in the institutions of higher education within one mideastern state. Five population subgroupings were studied including whites, blacks, Asians, Hispanics, and females. Trends relating to the critical areas of mathematics, science, computer science and foreign languages are discussed. Two points of focus examine one state's experience with minority enrollment trends in teacher preparation programs. In addition, the implications of a significantly low minority faculty percentage in higher education institutions are examined. The data on minority faculty representation paint a dim picture for the presence of minority role models in higher education.

## Orientation

The intent of this study was to determine the nature and magnitude of both minority faculty and students presently found in institutions of higher education in a mideastern state. An attempt was also made to portray any trends as they relate to the preparation of teachers in the presently critical areas of mathematics, science, computer science and foreign languages. Information concerning these subject area enrollments for students was collected from postsecondary institutions in the state. These statewide data were divided into six different population sub-groupings which included white, black, Asian, Hispanic, and female. Information in mathematics education and science education was only available for degrees earned.

## Students

Black students constituted 6.1% of the student population in the state's postsecondary institutions (Indiana Commission for Higher Education, 1985). However, it is clear that these students are not pursuing careers in teaching, mathematics, or the sciences in proportionate numbers. The data reveal that 2% of mathematics majors, 3% of science majors, 2% of foreign language majors, and 6% of computer science majors were black (TABLE 1). Apparently, black students are pursuing other fields of study at a much higher rate.

A more disturbing concern than the lack of black students pursuing degrees in computer science, mathematics or science and education is the even lower percentage of black students actually earning degrees in these fields (TABLE 1). The greatest problem appears in computer science, where black students make up 6% of students majoring in the subject; however, black students represent only 2% of the students earning degrees in the subject. Hispanic, Asian, and white students graduated at a higher rate than their proportion of computer science majors. In three other academic areas--mathematics, science, and foreign language--black students also earned degrees at rates lower than

TABLE 1

POSTSECONDARY SUBJECT AREA ENROLLMENT
BY POPULATION SUBGROUPS

| Subject Area / Sub-groups | Mathematics | | Math Ed. Degree | Science | | Science Ed. Degree | Foreign Languages | | Computer Science | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Major | Degree | | Major | Degree | | Major | Degree | Major | Degree |
| Female | 45.0% | 44.0% | 47.0% | 38.0% | 36.0% | 47.0% | 72.0% | 70.0% | 32.0% | 31.0% |
| Black | 2.0 | 1.0 | -- | 3.0 | 2.0 | 6.0 | 2.0 | 1.5 | 6.0 | 2.0 |
| Hispanic | 1.0 | 0.6 | -- | 1.6 | 1.5 | -- | 4.0 | 3.0 | 1.0 | 1.2 |
| Asian | 1.8 | 1.5 | -- | 2.3 | 1.5 | -- | 1.0 | 1.0 | 2.0 | 2.3 |
| White | 83.0 | 81.5 | 89.0 | 85.5 | 87.0 | 94.0 | 84.0 | 85.5 | 79.0 | 83.5 |

their proportion of the students majoring in those subjects. Black students did represent 6% of the degree students in science education, but did not constitute any percentage of the mathematics education degrees. These figures are augmented by another study (Warren, 1986). This survey included data from 31 of the 40 postsecondary, four-year institutions in Indiana. The survey indicated that less than 200 black students were majoring in education in this state. This represents 2.2% of the black student population from the colleges and universities.

## Faculty

In a survey (Warren, 1986), data on black faculty members and their highest degree attained were collected from 31 of the 40 four-year higher education institutions in Indiana. Respondents included the three public universities which anually produce over 50% of the new teachers in Indiana. Information was collected in the following categories: full-time/part-time faculty, male/female faculty, and faculty rank.

The survey revealed that 157 black men and women serve as full-time faculty members at the 31 institutions of higher education (TABLE 2). Part-time faculty members included 84 blacks. The ratio of black men to black women is equal at the full-time and part-time levels. However, part-time black males hold terminal degrees 3 1/2 times more often than part-time black females, and full-time males hold terminal degrees over 1 1/2 times more often than full-time black females. When comparing all faculty (males and females) regarding full-time or part-time employment status and the presence or absence of terminal degrees, a chi-square value of 9.95 was found to be significant ($p < 0.05$) reflecting real differences among these minority dimensions in terms of employment status. Partitioning the data from a degree no degree perspective revealed a chi-square value of 7.71 ($p < 0.05$) which represents

TABLE 2

BLACK FACULTY IN INDIANA POSTSECONDARY INSTITUTIONS

| Faculty-Type | Male | Female | Total |
|---|---|---|---|
| All Faculty | | | |
| Full-Time | 73 | 74 | 157 |
| Full-Time w/ Terminal Degree | 44 | 27 | 71 |
| Part-Time | 43 | 41 | 84 |
| Part-Time w/ Terminal Degree | 24 | 7 | 31 |
| Education Faculty | | | |
| Full-Time | 6 | 9 | 15 |
| Part-Time | 2 | 3 | 5 |
| Faculty Rank | | | |
| Lecturer | 2 | 3 | 5 |
| Assistant Professor | 1 | 2 | 3 |
| Associate Professor | 4 | 1 | 5 |
| Full Professor | 1 | | 1 |

significant differences in terms of terminal degrees received. Males possessed significantly more terminal degrees than females whether they work full-time or part-time. Although equal in numbers, black males and females are clearly not equal in education level, which in higher education will ultimately relate to job and power levels. Within the 31 colleges and universities, only 20 black faculty members were identified as members of education faculties. Of these 20 faculty members, 15 were full-time faculty. However, only one black held the rank of full professor in education. It should be noted that information relating to education faculty did not include degree levels attained.

Another source of data provided a faculty count of all Indiana University campuses in the subject areas of mathematics, mathematics education, science, science education, foreign language, foreign language education, and computer science. (TALBE 3). The information included full-time faculty only at the University's nine campuses, which produce over 30% of the new teachers in Indiana on an annual basis (Indiana University, 1986). The total faculty count of 605 consisted of 86 (or 14.21%) female professors and 519 (or 85.79%) male professors. Of those female faculty members 79 (or 91.8%) were white (Indiana University, 1986). Of most noticable concern was the presence of only 2 full-time black faculty members in seven subject areas, representing less than one-half of one percent of the 605 faculty members in those subjects. Asian faculty members were much more prevalent, although their presence was in the arts and sciences' departments rather than the education departments. Asian professors represented over 6% of the full-time faculty, a significantly higher proportion than the proportion of Asian students enrolled in these subjects. Hispanic faculty members were present only in foreign language and science; however, they were much more prevalent than black professors.

TABLE 3

FULL-TIME FACULTY COUNT BY POPULATION-TYPE
FOR THE INDIANA UNIVERSITY SYSTEM

| Subject Area | White | Black | Asian | Hispanic | Female | Total |
|---|---|---|---|---|---|---|
| Science | 342 | 2 | 15 | 6 | 48 | 365 |
| Science Education | 17 | | | | 1 | 17 |
| Mathematics | 73 | | 15 | | 7 | 88 |
| Mathematics Education | 5 | | | | 1 | 5 |
| Foreign Language | 96 | | 7 | 5 | 21 | 108 |
| Foreign Language Education | 1 | | | | 1 | 1 |
| Computer Science | 21 | | | | | 21 |
| Faculty Total | 555 | 2 | 37 | 11 | 86 | 605 |
| Percentage of Total | 91.73 | 0.0033 | 6.12 | 1.82 | 14.21 | 100% |

## Implications

Minority persons presently comprise a very small proportion of the total students and faculty members teaching at institutions of higher education in the State, and the situation is not likely to improve in the future based upon current minority enrollments in colleges and universities. The statistics on minority and women faculty at institutions of higher education warrant use of the term critical. For example, the survey by Warren (1986) indicated that out of the 31 higher education institutions in Indiana which participated in his study, there were only 157 full-time black faculty across all subject areas. There were only 20 black faculty in schools of education and only one of these individuals was a full professor. A survey of all Indiana University campuses in the areas of science, science education, mathematics, mathematics education, foreign language, foreign language education, and computer science indicated that only 14% of the full-time faculties in these areas were females and less than one-half of one percent were black. Hispanic faculty were more common than blacks but still constituted a very small minority of the faculty population.

Support and encouragement for minority students is needed at all levels of education. Minority youth should be encouraged to continue their education in technological education areas at institutions of higher learning by their parents, guidance counselors, and classroom teachers. More minority role models are needed at the high school level. However, encouragement in the past has not been enough. Verbal support must be backed up with financial help. Foundations should be encouraged to support more minority students. Colleges and universities need to offer more minority scholarships. Retention programs should also be encourged to cut down on the high discrepancy between students enrolled and students graduating in certain technological areas. The active support of minority students should have a permeating effect on the total number of future minority students and faculty members as the number of role models increases in the various areas.

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